

U.S. NAVY MEDICINE

November-December 1983



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COVER: The Medal of Honor is the highest military award for a deed of personal bravery or self-sacrifice above and beyond the call of duty. Recently, the Naval Medical Command dedicated the Medal of Honor Hall at its Washington, DC, headquarters and paid tribute to 21 hospital corpsmen who earned this Nation's top military honor (see page 6).

Put the Lid on Fraud, Waste, and Abuse

We have all been reading the horror stories both within and without the Navy concerning fraud, waste, and abuse. Metal screws that cost \$119. Cotter pins that run \$12 through the supply system, but \$0.15 at the local hardware store. Huge rebates being paid to the Navy by defense contractors, but only after a whistleblower points out the waste.

You get my point. We, as a responsible arm of the Navy Department, cannot and must not ever let a single instance of fraud, waste, or abuse go unnoticed. And if we notice it, we must deal with it. We can be satisfied with nothing less.

Fraud, waste, and abuse can occur in many areas other than the standard purchasing agreements. Have you checked your official phone bill lately? Does someone in the command check it every month to see if unauthorized calls are being made? I hope so. I also hope that if such calls are found, the responsible party pays whatever fees are necessary to reimburse the Government. Of course, that option only exists for the first infraction. If an offender makes the same mistake again, he must be dealt with severely.

Does someone keep a watchful eye on overtime and compensatory time? It's another area fraught with abuse. Is the comptroller or purchasing agent careful always to exhaust official supply lines before going to the open

market? Even though it can be a cumbersome system, we must make use of it; there's no alternative.

The list could, unfortunately, go on and on. The point is, we must be in the forefront of the war on fraud, waste, and abuse. Nothing less will suffice. Remember that every time someone abuses the system, our taxes pay the way. That's the bad news.

The good news is that I can now make a strong pitch for our new fraud, waste, and abuse system in the Medical Department. The program will be on line shortly and will include a toll-free phone number for reports of fraud, waste, and abuse. This is not a witch hunt, but I want to assure you that my efforts to eliminate any indication of fraud are quite serious. I have very strong feelings about the topic.

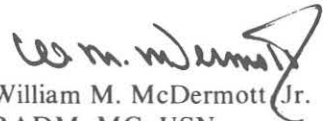
If anyone of you witness fraud, waste, or abuse, I consider it your duty to report the act on the hotline. Your confidentiality will be maintained in the strictest sense. We must, however, have some way of contacting you for followup details. For that reason, the recording you hear when you call the hotline will ask for your name and phone number. Please provide us with this vital information. Our system will be much more effective.

The numbers are: nationwide, toll-free (800) 821-8137, and in the Washington metro area, 463-0275.



Please use the system. It's our best defense against fraud, waste, and abuse. We will provide more information and publicity materials in the very near future.

A major point: the hotline is designed to handle reports of fraud, waste, and abuse. We should not overload it by allowing its use as a complaint line. We have other, similarly strong, avenues to address those matters.


William M. McDermott Jr.
RADM, MC, USN

Farewell From HMCM Brown...



HMCM Brown

This last message is being written with mixed emotions and a heavy heart. Since I entered the hospital, I have had considerable time for thinking and can come to only one conclusion; the Navy Medical Department is the greatest and can only continue to improve.

The years past have seen our corps faced with numerous obstacles during periods of peace and turmoil but our predecessors never faltered. Our heritage is one of dedication, service to patients and country, and pride and professionalism in accomplishment. We have all witnessed major transitions in the Navy Medical Department. We will continue to see changes in the future and I would not be so foolhardy as to predict what they will be but I think we can all look to the future with the greatest confidence.

The challenges of the new are no less frustrating and overwhelming. We are experiencing new and painful encounters with detractors of our health care system but our members continue to demand and demonstrate a maturity and professional commitment rivaled by none. Never forget that everyday, the common denominator of everything we do is people. You have got to like people, all kinds of people.

Compare the complexities of today's health care arena both within and without the Navy with that of just a few years ago. Who brought it about? Men and women with ability, with drive, and a commitment to making it better—changed the shape of their future and opened the doors for

you and those who will come after. It has been people who made our system—any system—become a productive, dynamic instrument by which our goals have been met. I take great pride in your individual and collective accomplishments; the future of our Medical Department lies in your steady, capable, and compassionate hands.

As I take my leave from being your Force Master Chief, I want each of you to know I will always value your friendship and support. I will never erase the great appreciation I have for all your efforts during this tour and the knowledge that you enjoy my upmost confidence. Always remember, I loved every one of you.

I know that you will give Master Chief Green [Louis V. Green, Jr.] your full support. Without question, he is a great person, leader, and most of all, a Master Chief Hospital Corpsman that believes in you.

Thank you and
goodby. The Force
has and always will be
with you,

Stephen W. Brown
STEPHEN W. BROWN

P.S. I cannot begin to express my thanks and appreciation from all well-wishers. There is no greater therapy in this world than people.

... HMCM Green New Force Master Chief

Master Chief Hospital Corpsman Louis V. Green, Jr., USN, a native of Pennsylvania, enlisted in the Navy in September 1954. After graduating from Hospital Corps School at the Naval Training Center, Bainbridge, MD, he served at the Naval Hospital and at Bancroft Hall Dispensary, U.S. Naval Academy, both in Annapolis, MD.

In 1957 HMCM Green reenlisted and reported to the National Naval Medical Center, Bethesda, MD, for X-ray technology training. He then served with Force Troops, Fleet Marine Force, Atlantic, based from Camp Lejeune, NC. Next came Medical Equipment Repair School, where he graduated at the top of his class. He subsequently was assigned to the Naval Supply Depot, Mechanicsburg, PA.

After Advanced Hospital Corps School at Portsmouth, VA, Green reported to the Third Force Service Regiment, 3rd Marine Division, Okinawa, and spent a year in Vietnam. Later assignments included USS *DeLong* (DE-684), homeported in New York City and a tour at the Naval Submarine Medical Center, Naval Submarine Base, Groton, CT.

Upon his selection to Master Chief Hospital Corpsman in 1973, Green

reported to the U.S. Marine Base, Twentynine Palms, CA. In 1976 he returned to the Naval Submarine Medical Center to serve as Command Master Chief. He served with the Marines again at 1st Marine Brigade, Kaneohe, HI, and then reported to the Naval Health Sciences Education and Training Command, Bethesda, MD. Green was serving as Command Master Chief there when his selection as Force Master Chief, Naval Medical Command was announced.

HMCM Green holds an associate degree from Mohegan Community College, Norwich, CT, and a bachelor's degree in health care services from Southern Illinois University. He is a student associate with the American College of Hospital Administrators.

His military awards include the Navy Commendation Medal, Navy Achievement Medal, Navy Unit Commendation, Good Conduct Medal (7th award), National Defense Medal, Vietnam Service Medal, Vietnam Meritorious Unit Commendation Gallantry Cross with Palm and Frame, Vietnam Meritorious Unit Commendation Civil Action 1st Class with Palm and Frame, and Vietnam Campaign Medal.



HMCM Green

LHA Means "Largest Hospital Afloat"

Ask USS *Tarawa's* LT Tom Burden, what LHA stands for and he'll tell you "largest hospital afloat."

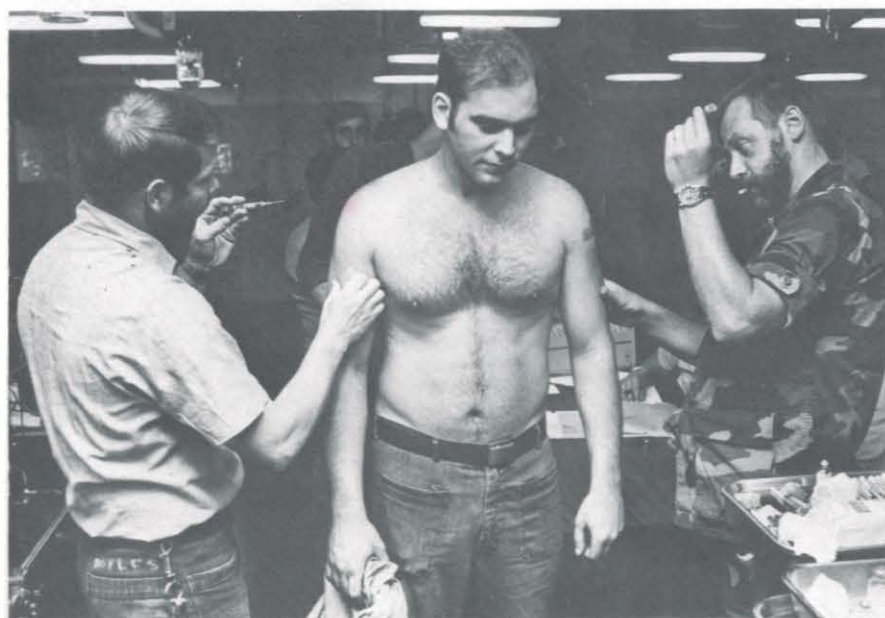
The Medical Service Corps officer is not exaggerating. Filling a role formerly performed by hospital ships, USS *Tarawa* and her class of ships reflect the Navy's efforts to consolidate as many functions as possible within one hull.

Tarawa is designed to fulfill the requirements of four warships in one—an assault ship, an amphibious transport dock, an attack cargo ship, and a dock landing ship.

But it is her humanitarian role that earns her the distinction of being the

largest hospital afloat. Her medical and dental facilities can accommodate up to 300 patients. With two main operating rooms, postoperating wards, X-ray rooms, lab pharmacy, blood bank, sterilizer room, physiotherapy room, and recuperative and isolation wards, the LHA has the Navy's most extensive medical facilities afloat.

LCDR Mike Silverberg, the aviation medical officer aboard *Tarawa* explains why: "The differences between ourselves and a carrier is that we carry more marines. We're close to the beach and would be the first echelon hospital beyond the beach.



Hospital corpsmen William Healy (right) and Dennis Boyles administer shots to *Tarawa's* crew in the main triage area. Healy is assigned to the 1st Marine Brigade from Marine Corps Air Station, Kaneohe, HI, but currently is embarked on *Tarawa*.



Our secondary job (besides being an assault carrier) is to be an offshore hospital."

According to LCDR Neil Fishbeck, *Tarawa's* dental officer, he may examine anywhere from 4 to 20 patients a day. "Support ships such as tenders have more comprehensive dental programs," he maintains. "We can eliminate infection and pain, but are not considered a primary definitive care dental facility."

The logic behind this is that *Tarawa's* primary role is in support of combat casualties. A visitor to the LHA's medical department is at once impressed with the main triage area, which serves as a receiving station for mass casualties during war. In peacetime, it is the area where patients line up for shots, shipboard divisions listen to medical lectures, and mass casualty drills are conducted.

At the far end of the triage (which refers to sorting of patients according to the extent of their injuries) is an elevator that links the medical department with the flight deck. Stretcher-bearers can transport casualties into the flight deck battle dressing station for immediate first aid.

There are four smaller auxiliary stations scattered throughout the ship. At the far end of the passageway is a 12-bed morgue.

But what sets the ship's facilities apart from all other fleet facilities is



USS Tarawa

the 17-bed Intensive Care Unit, just off the 40-bed main ward. This is the pride of the medical department, and as Silverberg guides you for a closer look, his voice cannot camouflage his excitement.

"Each bed has wall suction and oxygen, a cardiac monitor, a Schwann Ganz catheter" (unit that measures heart pressure), he says. In addition, the unit has facilities for burn patients, severe trauma patients, and can render surgical, orthopedic, and cardiac care.

When the ship's surgical team is embarked, *Tarawa* often reaches out to help others. "When an LHA goes into certain ports," explains Silverberg, "they'll set up clinics on shore with supplies. In one Indian Ocean port, USS *Belleau Wood* treated trachoma, malnutrition, leprosy, tuberculosis, and parasite infections—all tropical diseases. An LHA probably has better medical facilities than some Third World countries."

This ability to render assistance to others is best demonstrated by a continuing phenomenon—treating boat people that the ship sometimes takes aboard. "On the last LHA we were aboard," says Silverberg, "we picked up 70 boat people, some seriously ill. We resuscitated people, and pulled one pregnant, dehydrated woman out of a coma. We even carry diapers and baby food." □

—Story and photos by JOI Glenn Jochum



Big is good but empty is better in Tarawa's 17-bed intensive care facility. Hospital corpsmen Kevin Alexander (left) and David Huff are assigned to monitor treatment of patients.



Litter stands minus litters are lined up in Tarawa's main triage area during a mass casualty drill.

NAVMEDCOM Dedicates Medal of Honor Hall

The Naval Medical Command, in ceremonies on 21 Nov 1983, dedicated a Medal of Honor Hall in memory of 21 hospital corpsmen who have received the prestigious Medal of Honor. The Hall is located in the original Naval Observatory at the Naval Medical Command Headquarters in Washington, DC.

To create the memorial, a conference room was refurbished and hung with photographs of each honoree and a copy of the original citation which accompanied their awards. An actual Medal of Honor is also prominently displayed. Eleven of the plaques contain a ship photograph, testament to the number of Navy ships named in honor of hospital corpsmen.

Representing the Chief of Naval Operations was guest speaker RADM John D. Bulkeley, USN (Ret.), a Medal of Honor recipient. The ceremony was attended by Navy Surgeon General, VADM Lewis H. Seaton, MC, and Commander, Naval Medical Command, RADM William M. McDermott, Jr., MC. Also present were MGEN Harold G. Glasgow, USMC; Master Chief of the Navy, Billy C. Sanders; Sergeant Major of the Marine Corps, Robert E. Cleary; and Force Master Chiefs from most Washington based commands.

RADM Bulkeley was awarded the Medal of Honor for his Philippine service as Commander of Motor Torpedo Boat Squadron 3. Asked to describe the basic attributes of a Medal of Honor recipient,

he said simply, "There really is no common denominator of such people. It has to do with an inner spirit—a determination."

MGEN Glasgow, who represented the Commandant of the Marine Corps, said, "The Navy's hospital corpsmen, throughout history, have provided splendid support for the Marine Corps. They are such a part of us that the unique relationship between the Corps and our corpsmen is often taken for granted. But they have been with us—at Tarawa, at Iwo Jima, in Beirut and Grenada, and always.

"A marine might have to worry about a lot of things when he's in the field," said GEN Glasgow, "but he never has to worry about his 'doc.' All he has to do is look over his shoulder, in the thick of the fighting, and there's Doc, risking his life to save another marine. When the last Taps is played, you will still hear the echo of a marine calling for his doc. They're closer than brothers."

The Medal of Honor Hall was a project of former Medical Department Force Master Chief HMCM Stephen W. Brown. In ceremonies just prior to the dedication, he turned over duties as Force Master Chief to HMCM Louis V. Green, Jr.

A total of 21 hospital corpsmen have been awarded the Medal of Honor. The first was Hospital Apprentice Robert H. Stanley, for service during the China Boxer Rebellion in 1900. The last, Hospital Corpsman Second Class David R. Ray, was awarded a posthu-

HM2 Cathy Rasmussen



RADM Bulkeley, guest speaker for the Medal of Honor ceremony, addresses the audience.

mous Medal of Honor for service in Vietnam.

There are a total of 11 Navy ships named for hospital corpsmen. The most recently commissioned, USS *De Wert* (FFG-45), is named for Hospital Corpsman Richard De Wert, who received his Medal of Honor for Korea service. The USS *Halyburton* (FFG-40), named for Pharmacist's Mate Second Class William Halyburton, is expected to be commissioned soon.

Managing an Effective Hazardous Substance Program at Sea

HM2 Thomas Zimmerman, USN

Nearly all operations aboard aircraft carriers require the use of hazardous substances or exposure to hazards. Those monitored on USS *Midway* are Cellulube, water glycol, isocyanates, corrosion control chemicals (toluene, TMIK, MEK, MIBK, etc.), mercury, lead, trichloroethylene, microwave radiation, lasers, radiofrequency hazards, and JP-5 vapors.

The problem with these hazards is not the identification of the dangers involved, but the development of an effective management system for the exposed personnel. On *Midway* we have a program that works very well with moderate worry and upkeep.

First, we had to determine the nature of chemicals and other hazards that were present on the ship. This was accomplished by a memorandum to all departments requesting a list of all chemicals used and/or other hazards present in that department. This memo was reinforced by person-to-person contact in cases where the department was not certain what hazards existed.

When the responses were in, the substances were reviewed and the ones

considered to be the most hazardous were noted.

Research was then done to determine the appropriate medical tests for each substance. For example, personnel working in the weapons elevators are frequently exposed to water glycol, commercially known as Houghto-Safe. This substance contains nitrosamines which are suspected of causing various blood dyscrasias, and like any other toxin, may have detrimental effects on the liver.

When the results of tests are returned they are entered on a special SF 600 to which lab chits are superimposed. I and a medical officer again review the record. Abnormal results are rechecked. The medical officer performs the physical examination portion of the monitoring and follows appropriate recommendations for the specific hazard as identified in current NAVMEDCOM directives for each hazard.

Quarterly requests are made to the various divisions involved for names, rates, and SSN's of those personnel newly reporting and transferring, thereby keeping the program current.

A tickler file is maintained corresponding to each division and specific hazard, with a section devoted to miscellaneous exposures. This system

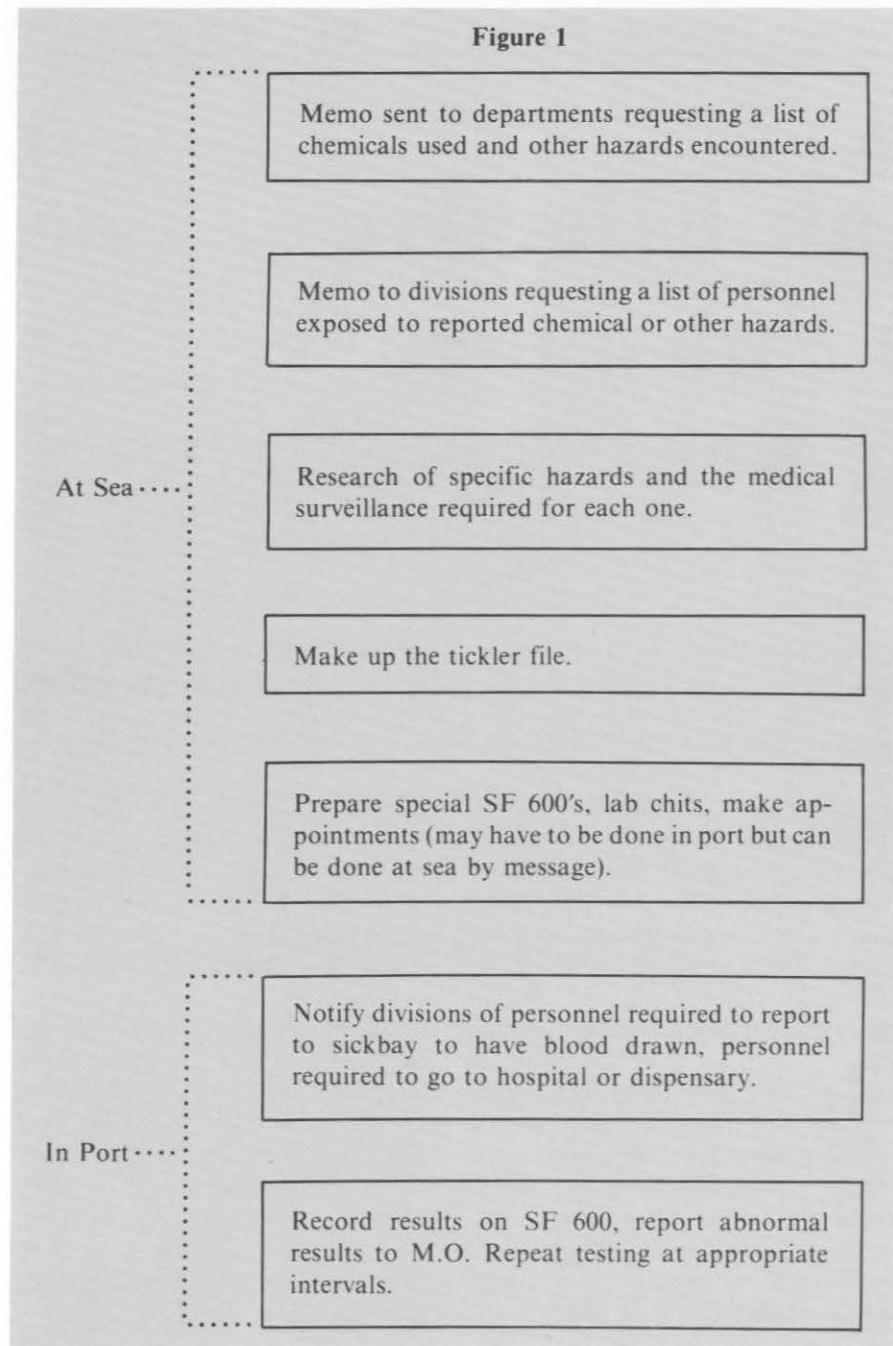
enables the medical department to enter the programs into a computerized data base. Such a tickler file requires additional initial start up time, but its maintenance once begun requires only 1 day per month.

Shipboard corpsmen have little time to spare and I am no exception. Nevertheless, the best time to prepare for the medical testing period for this program is while at sea. Once we enter our homeport, the preparation phase should be over and the active testing should begin. I type all my laboratory chits prior to pulling into port as often as I can. This saves time during the in-port period. I then arrange with our laboratory to have people come to sickbay for blood and urine samples. The bloodwork along with the chits are sent to the hospital laboratory; the urinalyses are done on the ship. For those personnel attached to squadrons who may be going TAD, the chits are prepared in the same manner, and the work is coordinated by corpsmen who go with the squadrons. Prior to the squadron departure, I brief the corpsmen on what needs to be accomplished while they are away.

In the case of slit lamp exams for laser or radiation exposures and pulmonary function tests for isocyanate exposure, I make these arrangements during the first few days in port.

When this article was written, HM2 Zimmerman was assigned to USS *Midway* as a preventive medicine technician. He is currently an instructor on the staff at the Disease Vector Ecology and Control Center, Alameda, CA.

Figure 1



An important part of the program is rapport, both with the divisions on the ship and with the people at the hospital. We are very fortunate to have a hospital that really supports our efforts in the Hazardous Substance Programs, the Asbestos Medical Surveillance Program, and others. The

relationships that develop between the corpsman in charge of the Hazardous Substance Program and the various divisions must be worked at very hard and very often. I sometimes pay random visits to various division officers to let them know my concern for their men. From these contacts I can tell

what divisions are going to cooperate the most and those that will need some work.

Another important aspect of the program is educating the crew. This can be accomplished with lectures on occupational safety and chemical hazards. I have also been able to pass the word in a daily column that I write in the ship's newspaper called "Ask the PMT." This has been well received by the crew and has drawn noteworthy comments from the ship's executive officer. Additional information is conveyed in the industrial hygiene portion of the Sanitation and Environmental Health Report and also via the person-to-person route.

One other aspect of the *Midway* medical department's structure that contributes to the success of this and other programs is a corpsman billet at *Midway* "I" Division. The division indoctrinates new arrivals and the corpsman screens them. This is how many personnel are identified as having been exposed to various substances or hazards prior to coming aboard. Through the work of "I" Division and our program structure, we have been able to place over 300 people on the Hazardous Substance Program, with many more in the working. Since the program's inception, there have been over 250 liver function tests, 40 slit lamps, 250 CBC's, and 50 pulmonary function tests completed. Happily, we have had a very small amount of serious occupationally-related diseases, but that of course doesn't lessen the importance of the program.

Figure 1 shows the workings of the at-sea and in-port functions and represents a seven-point strategy for an effective program.

This system has worked well on *Midway* and I believe that other carriers can benefit from our success. For more information write HMI George Wilson, Medical Department, USS *Midway* (CV-41), FPO San Francisco 96631. □

NAMRU-3's New Cairo Lab Open for Business

LCDR W. Richard Whitaker, USNR-R

One of the oldest cultures in the world now has one of the newest Navy medical research laboratories, housed in a sandy-colored six-story building that rises out of land that once was desert. The Kamal-Seal Biomedical Research Laboratory, located in the southeast of Cairo, Egypt, is the home of U.S. Naval Medical Research Unit No. 3 (NAMRU-3), which has been carrying out studies in tropical medicine for nearly 40 years.

The \$10 million structure, dedicated in March 1983, contains over \$2 million worth of the most modern equipment which allows its highly qualified personnel to use the latest technology in their research.

NAMRU-3 is divided into nine research departments: bacteriology, biochemistry, clinical investigation, dental research, immunology, medical

zoology, parasitology, veterinary medicine, and virology. All coordinate their efforts to fulfill the unit's mission, that of conducting research on the ecology, epidemiology, and pathophysiology of infectious diseases of military importance prevalent in the Middle East. The departments also develop, test, and evaluate methods for their diagnosis, treatment, prevention, and control.

The commanding officer is CAPT Craig K. Wallace, MC, an internist whose specialty is infectious diseases. Since March 1982 he has directed the work of 11 Navy and 4 Army officers, 16 enlisted Navy personnel, and 200 civilian employees, most of them Egyptian. Approximately 20 Egyptian doctors and medical consultants are directly affiliated with the facility, while part of the work is being under-

taken in cooperation with local research organizations, hospitals, universities, and faculties of medicine, the Ministry of Health, and the Egyptian military.

"The sophistication of equipment is unsurpassed by any single lab in this part of the world," CAPT Wallace explains, adding that there were only three research laboratories in the United States with comparable virological containment facilities. "The new building gives us and the region a state-of-the-art capability in basic science to deal with all infectious agents."

The new facility permits more efficient, cost-effective research in pleasant surroundings; NAMRU-3 had outgrown many of its basic labs, some of which predated World War II. "It will, upon completion," he says, "have the ultimate in containment facilities in order for us to be able to investigate any suspected disease outbreak and study infectious agents in complete safety."

That capability is important in fulfilling NAMRU-3's primary military mission—research relating to the health, safety, and performance of naval personnel assigned to the Middle East and Africa. "Every bit of research we conduct here is directed to that end," Wallace points out, citing the unit's ongoing shipboard study of the health of sailors before and after shore leave, and research into the effects of insect repellent-impregnated clothing for military personnel.

LCDR Whitaker is visiting associate professor in mass communications at the American University in Cairo and drills at NAMRU-3.



Dr. Mansour and technician at the high performance liquid chromatography machine.



Dr. Skelly and the cytofluorograph distribution analyzer.

The research facility also provides training for Egyptian scientists and medical personnel. "Because of the strong academic nature of our scientific program, we enjoy the respect of Egyptians and freely operate locally and throughout the region." This includes 19 countries of Southwest Asia.

One important program involves acute diarrheal diseases in Egypt, Somalia, and the Sudan, strategically vital areas where Navy and Marine Corps personnel might be deployed. Tests being conducted include delineation of the etiological agents, carrier studies, management and optimal therapeutic regimens, preventive medicine, and antibiotics. Research takes advantage of the area's extreme differences in populations due to seasonal changes and geographic location, ranging from Mediterranean to tropical climates. The best data, however, is being generated from shipboard studies of U.S. sailors, according to LCDR Louis Bourgeois, MSC, whose

specialty is bacteriology. "While it is valuable to study local populations," he explains, "we feel the best data we can get is from Americans coming in for a long term or on a transient basis." Studies have recently been conducted aboard USS *Eisenhower* (CVN-69), USS *Santa Barbara* (AE-28), and USS *Puget Sound* (AD-38), in close cooperation with the Navy Environmental and Preventive Medicine Unit 7 (EPMU-7) in Naples, Italy.

"With exposure to the Egyptian environment," Bourgeois says, "we wanted to know what diseases we'd see in order to try to determine why people who got sick got sick." In the *Eisenhower* test group, for instance, nearly half the sailors who had gone on liberty in Alexandria, Cairo, or Luxor were ill enough to go on sick call. "The thing that has us puzzled at this point is that nearly half the cases are unexplained. We didn't isolate a known etiologic agent."

Bourgeois refers to the work as "disease mapping in this part of the



CAPT Cahill with analysis plates.



A technician works with samples on the Gilford 203S automatic chemistry analyzer.



world," a feeling that is shared by others. "This is a research facility," Dr. Regina Skelly, a civilian employee whose specialty is immunology, proudly says. "If you want to do quality research, you want to stay with state-of-the-art equipment." She uses the terms efficient and most accurate to describe such equipment as a cytofluorograph distribution analyzer, one of about 200 in the world and the first in Egypt.

Dr. Moustafa Mansour, a biochemist, points out a high performance liquid chromatography machine capable of measuring metabolites in blood and providing a computer readout showing peaks and concentrations. The instrument is especially useful for therapeutic drug monitoring studies. His laboratory is also equipped with a water liquid chromatograph. The Gilford 203S automatic chemistry analyzer "does all our chemistry," he explains, noting that it can reduce a technician's task from an hour to 10

minutes. Less time means more can be accomplished.

"The kind of biochemical analysis we perform here," Mansour adds, "can only be done on specimens collected from patients with diseases that are unique to this area of the world. The nature of these specimens are such that they cannot be transported back to the United States for analysis," Mansour explains.

His view is echoed by CAPT Richard Cahill, MC, who specializes in immunology and hematology. "The uniqueness of doing research here is that we have the opportunity to study a number of patients with diseases endemic to this part of the world," which results in cooperation with many countries and investigators. Both doctors describe work being done in meningitis, hepatitis, and liver fibrosis. "Cases of nonepidemic meningitis in the United States and Europe are rare," says Mansour. "Not here." Likewise, the study of liver fibrosis caused by schistosomiasis, endemic in Egypt, has application in studying the mechanisms involved in the pathogenesis of other forms of liver disease, such as that caused by alcoholism. "The schisto model is much better to work with," Cahill explains. "We are studying liver fibrosis as a model for other forms of fibrosis."

While much of the research will benefit people in the underdeveloped countries of the world, ultimately, the work done at the facility will have military applications for U.S. forces. "What we're trying to do is to simplify the tests so they can be applicable to field operations," says Cahill. "We want to develop simple 'dip stick' diagnostic tests for diseases which are endemic to this area," those which could cause serious illness or result in 'down days' of low performance for a person in a combat area. "We want to be able to know what the disease is, how to treat it, and be able to get a recovered patient back out there as soon as possible." □

So You Want To Make Chief

LCDR Jack L. Peterson, MSC, USN



The United States Navy-Marine Corps records of victorious achievements on land, at sea, and in the air in peace and war have won for these services an honored position in our great nation. This heritage was passed on to us by our leaders, both officer and enlisted, whose outstanding examples of courage, integrity, and devotion to duty are historically significant. They accomplished their missions successfully by high caliber leadership and personal example. The strength of our services depends upon courageous, highly motivated, and responsible individuals.

Vaguely familiar ring? This excerpt from General Order No. 21, Leadership in the U.S. Navy and Marine Corps, dated and administratively no longer in effect, is nonetheless as germane today as it has always been. It then should not come as a surprise that the Navy would choose to select, promote, and retain personnel who exhibit these fine qualities, particularly when the selection, promotion, and retention concerns the "backbone" of our Navy, the chief petty officer.

LCDR Peterson is Administrative Officer, Office of the Medical Officer, Headquarters, U.S. Marine Corps, Washington, DC 20380.

So *you* want to make "Chief." You might ask, "How do you get there from here?" or, "How on earth does someone manage to glean leadership potential from a collection of plastitized, miniaturized, black and white papers?"

You might look at your career this way:

- Leadership
- Exposure
- Awards and Qualifications
- Discipline
- Education and Training
- Responsibility
- Sea Duty
- Health
- Involvement
- Performance

Leadership. There should be statements in your record attesting to your leadership qualities. This will go a long way toward convincing a board that you have potential for expanding roles. Success at one duty station with one group of people will not necessarily provide an adequate indication, hence wide exposure is also key.

Exposure to different people, places, cultures, roles, and positional

demands is important because your adaptability and versatility can then be measured. You will be able to call upon an ever-broadening experience base as your career progresses. You, your subordinates, and the Navy will benefit. In so many words, you need to participate in normal assignment rotation (Sea/Shore), transferring to different parts of the world (east coast, west coast, overseas), seeking different duty stations (I&I staff, hospital, clinic, naval station, air station, ship's company), taking on different jobs (section leader, branch head, supply, fiscal, laboratory, career counseling).

Awards and qualifications are indicative of effort beyond that which is ordinarily exhibited. Earning the enlisted Surface Warfare badge frequently enhances your value to the Navy because your perspective has expanded. Receipt of a decoration (Navy Achievement Medal, Navy Commendation Medal, etc.) or selection as a sailor of the year provides evidence of your willingness to go the extra mile.

Discipline. RADM Arleigh Burke, in his study entitled "Discipline in the U.S. Navy," gave us some measures of discipline. The following can be found

in the Bureau of Naval Personnel's condensation of that study:

Besides the large criterion of combat ability, there are many lesser criteria which in the aggregate become important measures of discipline: (1) A dignified pride and self-respect—pride in the Navy, in the unit, and in oneself; (2) A willingness to work for and to make personal sacrifices to the group good; (3) A smart appearance—a sloppy ship or a slovenly man will be so in action; (4) A respect for fellow men exemplified in courtesy and consideration; (5) Optimistic cheerfulness, liveliness, and exhilaration.

Comments in evaluations to the effect that you demonstrate these qualities and how you demonstrate them will immeasurably aid the Navy in determining your standing among peers.

Education and training are valuable supplements to experiences gained through exposure. They are valuable because you will bring to bear on problems new knowledge and means of applying that knowledge that may well make for better solutions; recall the adage about the informed decision vice the decision. Education and training mean collectively not only civilian college courses, but also correspondence courses, GED equivalency, LMET, and local damage control courses, for example. Keep your mind active.

Responsibility. We touched on responsibility in the paragraphs on exposure and discipline. It deserves separate attention: possess it, practice

it, get more of it. Proceed upward along two parallels, that of growing in your sense of responsibility as a person and leader and that of expanding the scope of resources (men/women, money, materials) for which you are responsible.

Sea Duty. Ours is a maritime service, demanding not just familiarization with the seas, but mastery of them and all things pertaining thereto. There is nothing like the "real thing" from which you can truly gain mastery of a skill. If we go to war, most of our people will go to sea or to Fleet Marine Force field units. We won't need to get up to speed and lose many days or months just acclimating to the operational environment. For the corpsman, medical practice is not the same everywhere. Equipment and supplies are austere in the Fleet Marine Force and not particularly sophisticated on board ships—certainly not anywhere near the assets one finds in a naval hospital. Your NEC precludes such assignment? Then get to different duty stations in support of different kinds of line units, e.g., naval air stations, naval stations, naval shipyards.

Health. Drug and alcohol abuse and obesity are among the more pronounced indications of a lack of concern for health—your own and that of your subordinates. Enough said.

Involvement. Evidence of your active involvement with the community and your unit is important. Few, if

any, styles of successful leadership call for a narrowly defined sense of awareness and activity. Engaging in planning for a ship's party, teaching a religious class in a house of worship, or camping out with a local Scout troop all get you "in touch" with other people. We are not a Navy operating in a vacuum, using only *our* means to accomplish only *our* ends. We work for and with the people of our Nation. Get involved with them.

Performance. Yes, the last but not least. On the negative side, personal problems occur in life, some more devastating or drastic than others; some will affect job performance. If this happens to you and you need help, ask for it! One such incident would not necessarily be viewed as a major aberration and may well be overlooked by a board. If you have received a "bad" evaluation, devote some thought as to why the commanding officer wrote it, pick up the pieces, and charge on! On the positive side, your diligent, moral attention to duty and productive effort are your part; the good marks will follow. Maintaining is not enough though; improve things, innovate.

Faithful adherence to every rule, unswerving dedication to every principle, and daily attention to every factor will not guarantee selection and promotion. What these actions will do is place you very much in the competition—that is neither too much nor too little to ask of yourself . . . if you want to make "Chief." □

Fleet Medicine Revisited 20 Years After

CAPT John B. Henry, MC, USNR

My ACDUTRA (active duty for training) for 1983 was an exciting experience aboard USS *Saratoga*, a few days with the guided missile destroyer USS *Luce*, and a flight on a Sea King helicopter for a SAR (Search and Rescue) mission. I became reacquainted with the fleet and refreshed my appreciation for Navy medicine afloat. I also had an opportunity to see the people who man our ships and observe their activities and responsibilities firsthand.

My previous sea duty 20 years before had introduced me to destroyers and destroyer escorts. This assign-

ment aboard *Saratoga* may have been a change in terms of the type of vessel but certainly not in the mission of its general medical officer.

Meeting and working with an enjoyable group of people in a challenging environment proved fascinating. Providing care at sea to approximately 5,000 men is no small responsibility. Yet, I found the medical personnel to be dedicated and competent professionals who took their work seriously.

The medical department had one board certified internist, a general medical officer with a background of 2

years graduate medical education and, when the ship was deployed, a ship's surgeon. In addition, there were 40 corpsmen to handle all the subspecialties including pharmacy, laboratory, sanitation, radiology, the emergency and operating rooms, and a 60-bed sickbay. The department offered comprehensive and complete medical services such as immunizations, surgery, diagnostic assessments, and management. Two corpsmen and a striker manned the laboratory and X-ray service. The corpsmen and a physician's assistant worked with the medical staff while one MSC officer and a senior chief handled much of the administration. This paperwork was about equal to that experienced in a university setting from a budget allocation standpoint. It included financial accountability for drugs, medication, and equipment.

Saratoga also had a physician's assistant and I was most impressed with his clinical skills and knowledge. The corpsmen too displayed great skill and dexterity on their early morning sick calls; the emergency room was open for the remainder of the day and night.

The most common medical problems the department encounters are upper respiratory infections, minor



Dr. Henry aboard USS *Luce*

Dr. Henry, Dean of the Georgetown University School of Medicine, drills with Medical Contingency Response Unit 306, NAVRED-COM Region 6, Washington, DC.

injuries, and orthopedic complaints concerning knees, backs, and feet.

Psychological/psychiatric disorders are also occasionally evident. These include immaturity under stress, tension, as well as a few personality disorders. My message to medical students in general has always been to appreciate the psychological and psychiatric manifestations of disease whether alone or in association with existing organic disease. It is even more important at sea, where many such disorders may be attributed to both youth and stress.

Eighteen-hour working days are not uncommon at sea added to the close contact of individuals on board ship. However, I noted that living conditions for both enlisted and officers have improved considerably in the last 20 years. There is greater privacy as well as available lounge facilities for relaxation.

Nutrition seemed quite adequate. Indeed, the calories were more than ample, and my regular visits to mid-rats (midnight rations) and the generous servings were a pleasant experience. A considerable amount of energy is consumed working at sea. The caloric intake is essential and the storage conditions for food undoubtedly prompt the heavy emphasis on fats along with an abundance of carbohydrates and ample proteins. With reference to hamburgers as "sliders," there was a lot of fried food.

Because a carrier is, in fact, both an industrial zone and a living environment, the medical department also has to monitor noise levels, conditions that could lead to heat exhaustion or heat stroke, and hazardous substances such as fuels, lubricants, and asbestos.

Sanitation is one of the most important programs in preventive medicine aboard any ship and it requires continual vigilance. I had an opportunity to make a sanitary inspection of the wardroom, mess, galleys, reefers, and storerooms. The inspection identified potential as well as actual hazards.

The medical department also administers urine drug tests by social security number every 2 weeks; each

person is therefore examined approximately two to three times annually.

During drills or in actual emergencies battle dressing stations are manned by a physician or physician's assistant and corpsmen depending on the size of the area. *Saratoga* has six battle dressing stations covering the flight deck and all three levels extending the entire length of the ship. Both seamen and line officers have acquired first aid skills and should an injury occur in battle or in the course of day-to-day shipboard activity, they are prepared to assist their shipmates. The medical department trains all enlisted and officers to handle the five basic wounds, e.g., fracture of an extremity, sucking chest wound, compound fracture and laceration of the jaw, abdominal wound with evisceration, and traumatic amputation of the hand.

Finally, I would like to comment on the ship's senior medical officer. He is normally a flight surgeon and is uniquely qualified to perform the complex physical examinations required by our naval aviators to maintain their flight status. He has all

the sophisticated diagnostic equipment at his disposal to insure the accomplishment of this mission. At sea, when the air wing comes aboard, a flight surgeon accompanies each group and is added to the medical department's complement. These physicians give special attention to their own officers and airmen.

The few days I spent on the destroyer were a microcosm of the carrier. The small ship's company enabled me to become better acquainted with the demands and needs of the line. There was no apparent reduction in responsibility and risk assumed by the crew or lack of technological sophistication in terms of weapons, other support equipment, communications, or combat information systems.

In short, I found my assignment very enlightening in terms of my own life. It also prompted me to come away with the deepest respect and admiration for my colleagues and for the Navy which maintains the security of the seas and serves as the front line of defense for our Nation. □



USS Saratoga

Xerostomia

Diagnosis and Treatment

COL J.L. Konzelman, DC, USA (Ret.)
CDR G.T. Terezhalmay, DC, USN

Managing patients with xerostomia is a challenge. Dry mouth is not a specific disease entity, but it may be secondary to a number of significant local and systemic factors.

Diagnosis

A reduction in salivary flow has been attributed to such factors as heavy smoking and alcohol intake, aging, altered psychic states, and idiopathic conditions. Specific local factors may include the rare congenital absence or aplasia of one or more major salivary glands or ducts;(1) glandular hyperplasia seen in mumps, sialolithiasis, and sialadenitis;(2) and neoplasias, which usually affect an isolated gland (although there may be infiltration of multiple glands in leukemia and lymphoma).

Systemic conditions associated with xerostomia include diabetes mellitus and Sjögren's syndrome, a relatively common condition in women between the ages of 40 and 60 characterized histologically by lymphocytic infiltration of the salivary glands.(3,4.) Xerostomia may also be associated with

collagen vascular or connective tissue disorders such as systemic lupus erythematosus, scleroderma, mixed connective tissue disease, and polydermatomyositis.

The most dramatic form of xerostomia is seen secondary to external irradiation of the head and neck. Implants produce more localized, less destructive structural changes because effective irradiation drops off at the periphery. Medications from such varied categories as hypnotics, antispasmodics, decongestants, diuretics, antihistamines, amphetamines, tranquilizers, and neoplastic inhibitors have all been implicated in xerostomia.(5)

Chronic xerostomia may result in painful oral soft-tissue problems (Figures 1 and 2), a high incidence of rampant caries, and poor tissue adaptation to prostheses. Furthermore, the reduced buffering capacity of the saliva leads to a more acid oral environment, altering the sensitivity of taste buds and precipitating the development of hairy tongue (Figure 3). The increased acidity contributes significantly to the alteration of the oral ecology, producing predictable, dramatic changes in the oral microflora.

The virulence of the resultant cariopathogenic microorganisms is respon-

sible for the logarithmic increase in the caries incidence of xerostomic patients. This type of caries characteristically involves the dentin and cementum exposed at the cervical areas of teeth (Figure 4) and affects cusp tips and incisal edges (Figure 5), in contrast to the traditional carious penetration of the enamel noted interproximally and in pits and fissures of occlusal surfaces.

Tooth loss, a predictable sequela of advanced carious lesions, presents further difficulties for both the patient and clinician. Xerostomia contributes to decreased retention of tissue-borne prostheses, which may in turn contribute to the development of traumatic ulcerative lesions on already compromised tissue. In irradiated patients, such lesions take on added significance because they allow for the penetration of oral bacteria to deeper osseous areas, with a potential for the development of markedly morbid osteoradionecrosis.

Treatment

Saliva substitutes. Systemic management directed at the underlying cause of xerostomia in most instances is within the purview of the physician. Saliva substitutes are palliative, and they are used primarily to compensate for the deprivation of salivary flow.

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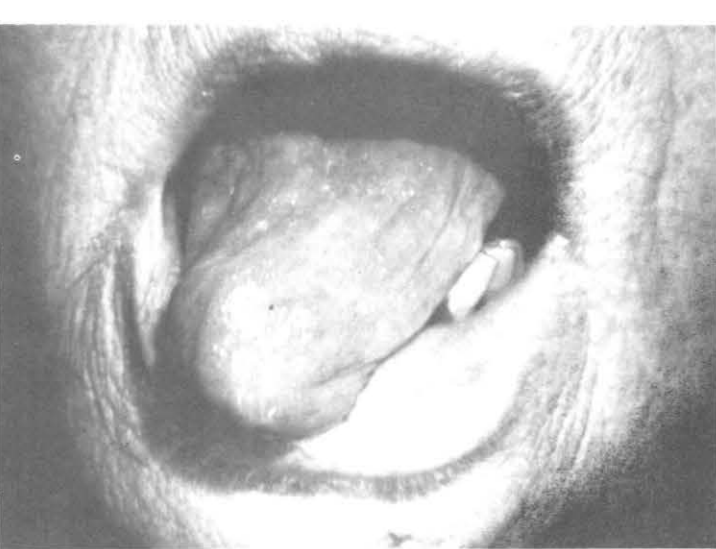


Figure 1. Severe xerostomia secondary to head and neck irradiation

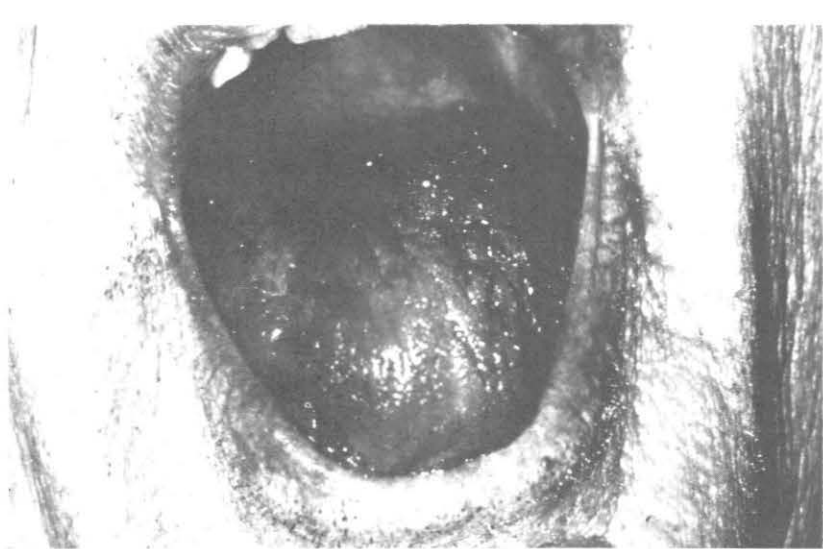


Figure 2. Severe xerostomia and mucositis secondary to diuretic therapy

Replacement therapy should be instituted with a nontoxic topical agent that contains many of the elements of normal human saliva and relieves intraoral symptoms without significant accumulation of mucosal plaques.(6-10)

For many years clinicians have recommended, prepared, and prescribed a wide variety of wetting agents for the xerostomic patient. Some have suggested the frequent use of water, saline solution, or alkaline-saline rinses.(11-17) Others have recommended hard candy, sugarless chewing gum, lemon drops,(18) a wide variety of glycerin-based solutions,(12,13,19-21) sialagogues,(12,19,20-24) and chlorhexidine,(25,26) all of which provide some degree of symptomatic relief. Commercial mouthwashes containing alcohol and thymol, however, are of little or no clinical value.(5)

In 1974 'S-Gravenmade et al.(7) reported on an artificial saliva prepared from major bovine salivary glands. This mucin-containing product, with an apparently extended duration of moistening action of mucous membranes, was reported to exert a protective effect on tooth structure. More recently, Shannon et al.(9,10) reported on the clinical use of an artificial saliva that contained mineral concentrations comparable to those of the human whole saliva. Fann and Shannon(8) presented laboratory data indicating the potential of this agent to induce remineralization. They also



Figure 3. Hairy tongue

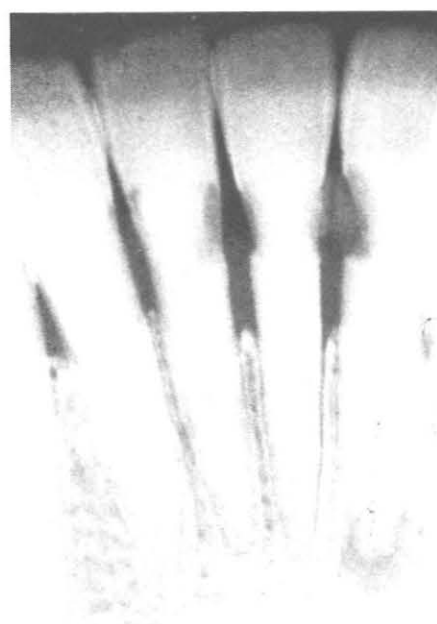


Figure 4. Cervical caries secondary to xerostomia



Figure 5. Caries affecting cusp tips and incisal edges associated with xerostomia

presented clinical evidence of dramatic results in irradiated patients and in psychiatric patients who experienced xerostomia as a side effect of major tranquilizers and tricyclic antidepressants.

Saliva substitutes moisten and lubricate the oral cavity. The viscosity and electrolyte concentrations of the substitutes are adjusted to approximate whole saliva, and pleasant-tasting flavoring is added to most preparations. Saliva substitutes may be swallowed.

Rx

Sodium carboxymethylcellulose, 0.5 percent aq. sol. (Prepared by your pharmacist)

Disp: 8 oz bottle

Sig: Rinse as often as needed to moisten and lubricate the mouth.

Rx

Xero-Lube saliva substitute (Scherer Laboratories, Inc.)

Disp: 6 oz bottle

Sig: Rinse as often as needed to moisten and lubricate the mouth.

Rx

Saliv-aid saliva substitute (Copley Pharmaceuticals, Inc.)

Disp: 2 oz bottle

Sig: Squeeze 2-4 drops into the mouth as often as needed to moisten and lubricate the mouth.

Rx

Salivart saliva substitute (Westport Pharmaceuticals, Inc.)

Disp: 50 ml spray can

Sig: Spray into the mouth and throat for 1-2 seconds as often as needed to moisten and lubricate the mouth.

It must be emphasized that saliva substitutes do not constitute a total chemical approach to the problem of rampant caries.(9,10) Daly et al.(27) and later Fann and Shannon(8) described a fluoride self-application pro-

gram for caries prevention in the irradiated patient that has shown excellent results. At present, a daily application of 0.4 percent SnF₂ gel in conjunction with a comprehensive oral hygiene program is advocated(9-11,27). Although these programs were implemented initially for the benefit of irradiated patients, their applicability is readily apparent for many patients with xerostomia.

Rx

Stannous fluoride gel, 0.4 percent (Omni-Gel, Dunhall Pharmaceuticals, Inc.)

Disp: 2.3 (6) oz bottle

Sig: Apply to teeth daily, 5-10 drops in a moist carrier for 5 minutes.

Conclusion

Symptomatic and supportive care of the xerostomic patient should include good oral hygiene procedures, proper dietary control, and the use of saliva substitutes. The substitutes should preferably have a pleasant taste, contain electrolytes in concentrations normally found in saliva, and have the viscosity adjusted with the addition of sodium carboxymethylcellulose. The use of supplemental fluoride agents to promote remineralization of the enamel is recommended. Fluoride delivery systems that provide optimal protection are now available.

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Perinatal Death: Aiding Grief Resolution

LCDR Charles C. Coddington, MC, USN

Fetal death is one of the most tragic and devastating events that can happen to a couple or individual. Even the most stable suffer deeply from such an event. The longer the pregnancy, the more severe the psychological trauma. These effects can lead to problems on an individual basis or marital level if not confronted and dealt with completely. Anxiety about child rearing and future pregnancy will also result.

The initial impetus for the support group came from several patients who expressed a need for help with grief resolution over a longer period than just routine postpartum care. This long-term need was expressed to several sympathetic listeners, and with a nucleus of several professions and two couples, the group was formed at the Naval Hospital, Beaufort, SC. Our support of professionals, clergy, and individuals of a similar experience helps those who have lost infants handle and address their grief.

The motivation for starting such a group is simply defining the patient's need. In the past, most training programs dealt with those, but also with the long-term response to loss which may last for months and years. Once the need in the local area has been

identified, others with similar goals may provide help, support, pamphlets, and information. Some of these groups are:

SHARE (Source of Help in Airing and Resolving Experiences)

St. John's Hospital
800 East Carpenter
Springfield, IL 62769

AMEND
4324 Berrywich Terrace
St. Louis, MO 63128

Bereaved Parents Support Group
1016 Van Buren
Madison, WI 53711

Compassionate Friends
Post Office Box 1347
Oak Brook, IL 60521

These national organizations are available as well as other support groups which may be found in larger metropolitan areas or around major medical centers.

Approaching each individual who has lost a child and addressing their specific needs may help them work through their grief. Support personnel can vary in background from those with a prior experience to nurses, chaplains, social workers, and physicians. To insure that each aspect in

dealing with the loss of a pregnancy is covered, it is helpful to develop a flow sheet such as Figure 1 which is used effectively in our hospital. With this method the information and supporting actions are presented in a very personal and complete way to each couple or individual. These duties may be altered depending on the care providers' desire and skills.

In large centers a check-off sheet placed on the chart helps to coordinate each care provider. An article in *Contemporary OB/GYN*, August 1982, illustrates such a sheet. Information covered should center around providing individual support. The physician must be a guiding factor to other members of the group as the initiator of care after pregnancy loss. It may have been the physician's evaluation that determined the infant's death; therefore, he/she must become involved. The couple should be told of the death with sympathy and sensitivity. The more direct, the better for both physician and the individuals. When the death is discovered or confirmed the physician should provide as much information as is available. If no clear cause can be found this should be stated. In the case of an intrauterine fetal death the onset of labor can be delayed. A patient needs a great deal of attention and support. Once labor and delivery begins, a caring attitude is vital. As more information becomes

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available from the delivery or postpartum evaluation, it should be given to the patient as clearly and simply as possible.

After labor and delivery the individuals should be encouraged to hold the infant. Focusing on the normal parts is helpful in viewing the infant. Standard postpartum care is necessary to minimize complications and maximize recovery. One should resist the urge to discharge the patient as quickly as possible allowing more time for emotional support.

Other members of the team are essential. Duties may be divided according to their talents. One important area is obtaining mementos (footprints, bracelet, photos) if desired. Providing an information package is also important and helps to introduce the patient and her partner to the sup-

port group. Members from the group may visit the patient in the hospital or call her by phone after the hospital discharge. Patient Affairs can assist by coordinating with the funeral home for services and helping to minimize administrative problems. In planning services and counseling the social worker may provide sympathetic listening, answer questions about grief, teach communication skills, and confer with the patient after discharge from the hospital as often as needed. By getting these and other members of the hospital staff involved, the patient can receive the best possible supportive benefits.

Knowledge of the grieving process is important. Several topics must be addressed to help resolve early grief reaction. Among these are an introduction to a caring and supportive

group. It is crucial that its members are comfortable with the painful feeling of grief in their private lives. A normal response to grief may include shock and numbness, searching and yearning, disorientation and disorganization, reorganization and problems of communication, as well as guilt. Further discussion of these topics may be found in *Contemporary OB/GYN*, August 1982, *Share Handbook*, *Parent Care Booklet*, as well as other professional sources (see References). From these resources one may develop original written material, or with permission, use information from the previously mentioned organizations. Again, the emphasis is on providing patient care using teamwork. This unity is helpful in continuing a group should a member be transferred to a new duty station.

FIGURE 1. Suggested Division of Responsibilities

| Physician | Chaplain | Labor & Delivery Nurse | Social Worker |
|--|--|---|---|
| 1. Provide support | 1. Grief counseling | 1. Assist in viewing infant | 1. Contact patient after delivery |
| 2. Give information concerning loss | 2. Aid in touch/view of infant | 2. Name baby | 2. Supportive listening |
| 3. Autopsy | 3. Assist in notification of husband, if not present | 3. Obtain tangibles—i.e., footprints, bracelet, photo | 3. Answer questions on grief |
| 4. Aid in touch/view of infant | 4. Followup visit to help with funeral | 4. Empathetic listening | 4. Communications counseling |
| 5. Appropriate medical care | 5. Memorial services, if desired | | 5. Daily visit, if possible |
| 6. Introduce idea of support group | | | 6. Contact support person; encourage group attendance |
| Followup in 2 weeks | | | 7. Provide information package |
| 1. Determine needs | | | Followup in 2 weeks or sooner per patient request |
| 2. Referral as necessary | | | |
| Followup in 6 weeks | | | |
| 1. Evaluate status of grief and recovery | | | |
| 2. Encourage support group participation | | | |

Through the course of grief the couple may withdraw and initially find it difficult to attend a support group meeting. The meetings may be monthly or more frequent if so desired by the group. The duration of attendance may vary from 2 to 6 months. Our meetings vary in size from two couples to several couples. It is important to encourage a couple to attend the group when they are able to do so.

Our group has no specific time limit, thus it allows for a more complete discussion of each topic. The SHARE group manual is helpful in providing structure for the meetings. Preparing for each session may vary from 1 to 3 hours depending on the speaker and topic. Our meetings begin with ground rules which encourage expression of feelings in a supportive atmosphere. There is no effort to limit emotion. Each person is encouraged to discuss everything completely. This permits individuals to support one another with common experiences. During the introduction one may discuss why he or she has come to the meeting. This leads to support responses from the group. A topic is then presented on material that has been selected by the group or has been a source of many questions. At the conclusion of the topic there may be some business decisions concerning the next meeting or other projects that apply. These projects are activities that help further the group such as articles for the newspaper, presentation to the community, or calling individuals who may benefit from the group. Our meeting usually closes with a minute of silence for those infants the grieving parents are there to remember.

This format is not fixed, but flexible to accommodate the talents and style of each facilitator. The leader may be a professional such as a social worker, chaplain, or physician. These are called leader facilitated groups. Interested members with experience or training in this area may also act as

leaders. Many workshops are available as well as AMEND, an organization devoted to this purpose. Another is the therapy-oriented group headed by a psychiatrist or psychologist. In each of these the central goal is to help the couple deal with their grief and resolve it normally.

Our group discusses the medical aspects of the death, the autopsy, and the neonatal intensive care unit. How grief affects husband and wife differently is another topic we cover. Recognition of the difference is important for mutual support.

Teaching how to communicate is vital. Partners teach each other this skill. This breaks the social isolation that surrounds grieving parents and helps integrate them back into society. We also deal with how to tell children about the death. A couple who experienced a loss 4 or 5 years ago due to Sudden Infant Death Syndrome (SIDS) further enriched our program and assisted grieving parents by providing personal confirmation that one does not forget the loss. Discussion of a future pregnancy and how it may relate to the previous pregnancy is important in helping individuals overcome anxiety and fear. These themes can be developed, modified, or combined to accommodate speakers. Religious faith can also help.

In summary, there are two important benefits to note for all concerned. The first is helping individuals work through one of the most tragic losses they can face. Secondly, teamwork is imperative.

Our group has served to bring the staff together and seems to have brought out the best in each member. The learning and growth of those who participate has been a positive experience for the hospital.

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Changes in Factor VIII Activity, Antigen, and Ristocetin Cofactor Levels After Infusion of DDAVP

LCDR Arnold S. Kirshenbaum, MC, USNR
LCDR Kaye R. Fichman, MC, USNR
CAPT Harold M. Koenig, MC, USN

Factor VIII is a plasma glycoprotein thought to exist *in vivo* as a complex of at least two proteins.⁽¹⁾ There are three commonly used laboratory measurements of factor VIII: procoagulant activity (VIII:C), the clot promoting activity that corrects the coagulation abnormality in plasma of patients with classic hemophilia A; antigen level (VIII:Ag) which is detected in precipitin assays by heterologous antisera and is decreased in the plasma of patients with von Willebrand's disease but normal in patients with hemophilia; and ristocetin cofactor activity (VIII:Rcof), the platelet aggregation promoting activity of the factor VIII molecule. A level of greater than 50 percent VIII:Rcof is necessary for the bleeding time, ristocetin-induced aggregation of platelets, glass bead retention of platelets, and adhesion of platelets to blood vessel subendothelium to be normal. In classical severe vWD, all three laboratory measurements of factor VIII are proportionally decreased. Many variant forms of vWD have been described and are characterized by discordant reductions in VIII:Rcof as compared to the levels of VIII:Ag and VIII:C.⁽²⁾

In 1972 the vasoactive peptide

lysine-vasopressin was found to increase the level of VIII:C in normal volunteers. Mannucci et al. subsequently reported increases of VIII:C, VIII:Ag, and VIII:Rcof in patients with hemophilia and vWD undergoing surgery after receiving intravenous 1-deamino-8-D-arginine vasopressin (DDAVP), a synthetic analogue of 8-arginine vasopressin.⁽³⁾ The DDAVP effectively promoted hemostasis without need for exogenous factor VIII in most patients. To date, no reports demonstrating the efficacy of DDAVP have appeared in the U.S. literature.

We studied the effectiveness of DDAVP in promoting hemostasis during dental extractions in a 12-year-old Filipino/Caucasian male with moderately severe vWD who had been hospitalized numerous times for severe epistaxis. Changes in factor VIII related activities were also measured after DDAVP infusion in a 16-year-old boy with severe classical hemophilia and normal control. DDAVP administered intravenously in a dose of 0.5 mcg/kg just prior to dental work in the vWD patient substantially increased levels of VIII:C, VIII:Ag and VIII:Rcof, and in the normal control. Bleeding was not a problem although the vWD subject's prolonged bleeding time was not reduced to normal levels. Levels of VIII:Ag and VIII:Rcof were increased in the hemophiliac without associated changes in VIII:C.

Patients and Methods

Subject 1 was a 12-year-old Filipino/Caucasian male with an autosomal dominant form of moderately severe vWD. He had a prolonged Ivy bleeding time and a history of frequent epistaxis requiring treatment with cryoprecipitate and occasionally red cell transfusions. Subject 2 was a 16-year-old Caucasian male with severe hemophilia A (factor VIII deficiency). He would self-administer factor VIII concentrate at approximately twice weekly intervals to control his hemorrhagic diathesis. Subject 2 had self-administered 1500 units of factor VIII concentrate for ankle swelling 5 days before the study. Subject 3 was a normal volunteer. No other medications had been used by any of the subjects for 1 month before the studies.

Approval for the use of DDAVP in these subjects was obtained from the hospital's Committee for the Protection of Human Subjects and from the Navy Investigational Drug Review Board. In addition, individual permission was obtained from each of the subjects and their parents for the performance of the study.

Pre-infusion blood studies were obtained and then DDAVP, diluted in isotonic saline, was administered intravenously over 10 minutes at a dose of 0.5 mcg per kg. Subject 1 was infused just prior to his dental extraction. Serial blood samples were obtained by venipuncture over the following 24 hours for coagulation stud-

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ies. Nine ml of blood was added to 1 ml of acid citrate, pH 4.6, in plastic tubes and platelet-poor plasma was immediately prepared by high speed centrifugation for 10 minutes at 0°C.

Ivy bleeding times were determining using the Simplate II apparatus (General Diagnostics). Levels of VIII:C were determined using the activated partial thromboplastin time one-stage assay in use in our hospital clinical laboratory. VIIIIR:Ag was measured by the quantitative immunoelectrophoretic technique of Laurell(4) as modified by Zimmerman et al.(5) Monospecific antiserum to human factor VIII for the antigen assay was obtained from Dr. Cecil Hougie of the University of California, San Diego School of Medicine. The assay for VIIIIR:Rcof was performed with washed gel-filtered normal platelets in serially diluted test plasma as described by Weiss et al.(6)

Results

Subject 1 with vWD had borderline normal VIII:C with decreased levels of VIIIIR:Ag, VIIIIR:Rcof, and a bleeding time of over 15 minutes. Subject 2 had severe hemophilia A with less than 1 percent VIII:C, normal VIIIIR:Ag, increased VIIIIR:Rcof, and a

bleeding time of 7 minutes. The control had normal VIII:C, VIIIIR:Ag, and VIIIIR:Rcof.

Subject 1 had only minimal bleeding during his dental extractions and there was no bleeding postoperatively. He experienced a sensation of burning at the injection site during DDAVP infusion. Subject 2 experienced a sensation of warmth in both arms lasting 10 minutes after DDAVP infusion. There were no problems with fluid retention, blood pressure, or decreased serum osmolality in any of the subjects or the control during the course of the study.

Infusion of DDAVP caused a dramatic increase in circulating levels of VIII:C, VIIIIR:Ag, and VIIIIR:Rcof in subject 1 and the control 1 hour post-infusion with peak levels between 1 and 2 hours and return to near baseline by 6-12 hours. In subject 2, levels of circulating VIIIIR:Ag and VIIIIR:Rcof increased similarly but there was no change in VIII:C. Ivy bleeding time in subject 1 was shortened from 15 minutes to 13 minutes 4 hours post-infusion and returned to greater than 15 minutes 24 hours post-infusion. Results of coagulation tests pre- and post-DDAVP infusion are summarized in Table 1.

Discussion

Intravenous administration of DDAVP in our subject with vWD was followed by a 158 percent increase in VIII:C, and 120 percent increase in VIIIIR:Ag, and a 438 percent increase in VIIIIR:Rcof activities 1 hour post-infusion. Bleeding during and after dental extractions was controlled despite a reduction in Ivy bleeding time from greater than 15 minutes to only 13 minutes 4 hours post-infusion concurrent with a VIIIIR:Rcof of 34 percent. A further reduction may have been realized at 1 hour post-infusion had the bleeding time been measured when VIIIIR:Rcof was 43 percent. As stated above, a VIIIIR:Rcof level of greater than 50 percent in theory is necessary for the bleeding time to be normal and could explain this finding.

It is of interest that other researchers have obtained similar results. Schmitz-Huebner et al. demonstrated 2- to 5-fold reductions in bleeding times determined by hemorhagometry in 3 patients with vWD. (7) Bleeding times pre-DDAVP infusion in these 3 patients were greater than 15 minutes and improved maximally to 10 minutes post-infusion, concurrent with levels of VIIIIR:Rcof less than 50 percent. These patients

TABLE 1. Responses of VIII:C, VIIIIR:Ag, and VIIIIR:Rcof after intravenous DDAVP in patients with vWD (1), hemophilia (2), and the Control (C).

| | VIII:Rcof (Percent) | | | VIII:C (Percent) | | | VIIIIR:Ag (Percent) | | |
|--------------|---------------------|-----|-----|------------------|---|-----|---------------------|-----|----|
| | 1 | 2 | C | 1 | 2 | C | 1 | 2 | C |
| Pre-infusion | 8 | 195 | 45 | 55 | 1 | 55 | 10 | 100 | 54 |
| 1 hour | 43 | 300 | 105 | 142 | 1 | 250 | 22 | 250 | 60 |
| 2 hours | 43 | 195 | 140 | 125 | 1 | 170 | 22 | 160 | 82 |
| 4 hours | 34 | 185 | 170 | 97 | 1 | 80 | 18.5 | 160 | 66 |
| 6 hours | 25 | 190 | 80 | 88 | 1 | 62 | 13.5 | 160 | 43 |
| 8 hours | 24 | 180 | 120 | 88 | 1 | 60 | 11 | 160 | 48 |
| 12 hours | 12.4 - 105 | | | 63 - 60 | | | 10.5 - 55 | | |
| 22-24 hours | 11 - 80 | | | 63 - 50 | | | 10 - 26 | | |
| Normal | 50 - 150 | | | 50 - 150 | | | 50 - 150 | | |

did not undergo surgery so clinical efficacy is unknown. Using DDAVP infusion, Mannucci et al. was able to control effectively bleeding in a patient with vWD undergoing cholecystectomy whose VIIIIR:Rcof was consistently less than 50 percent and bleeding time greater than 20 minutes before and after DDAVP infusion.(3) Mannucci et al. also described patients with vWD who had persistently abnormal bleeding time despite increases of VIIIIR:Rcof to normal levels after cryoprecipitate or DDAVP infusion.(8,9) Ludlam et al. described patients with vWD who had levels of VIIIIR:Rcof less than 50 percent and normal bleeding times.(10) These observations cannot be explained by differences in methods of performing bleeding times. Perhaps our factor VIII model of two proteins is oversimplified, and genetic variations currently unknown allow for hemostasis despite subnormal VIIIIR:Rcof levels.

To determine whether DDAVP will be efficacious, we recommend each patient be infused with a test dose of 0.5 mcg per kg DDAVP before scheduled surgery and bleeding time measured. Reductions in bleeding times to normal suggest efficacy. Patients with prolonged bleeding times may experience bleeding during or postoperatively and require cryoprecipitate to maintain hemostasis.

Infusion of DDAVP into subject 2 increased levels of VIIIIR:Ag 150 percent and VIIIIR:Rcof 54 percent 1 hour post-infusion over pre-infusion levels. There was no rise in VIII:C activity. Patients with severe hemophilia (VIII:C 1 percent) have also been shown by others not to have an increase in VIII:C after administration of DDAVP.(3) These results are not unexpected since patients with severe hemophilia A produce factor VIII that lacks VIII:C.

Nilsson et al. demonstrated that plasma prepared from normal blood donors given intravenous DDAVP before phlebotomy and later infused into patients with vWD caused bleeding times to become normal.(11,12)

Analysis of this plasma revealed 1.5 to 3-fold increases in levels of VIII:C, VIIIIR:Ag, and VIIIIR:Rcof compared to plasma obtained from the same donors not receiving DDAVP before phlebotomy. Comparable increases (in VIII:C, VIIIIR:Ag, and VIIIIR:Rcof) were obtained in our control. These findings suggest VIII:C and VIIIIR:Rcof prepared from plasma post-DDAVP infusion are functional. The preparation of cryoprecipitate with 1 to 3 times as much VIII:C as conventional preparations would reduce exposure of patients to hepatitis and transfusion reactions.

Generally, the infusion of 1 unit of VIII:C per cg of body weight will raise the level of circulating VIII:C by 2 percent. In subject 1, who weighed 40 kg, the DDAVP infusion was equivalent to administration of approximately 1750 units of VIII:C. On the average 1 bag of cryoprecipitate prepared from 1 unit of whole blood contains 80-100 units of VIII:C, thus 18 to 22 bags of cryoprecipitate would have to have been transfused into subject 1 to achieve a similar increment in circulating VIII:C levels. One bag of cryoprecipitate costs our blood bank \$30. The cost for this cryoprecipitate would have been about \$600. In this subject DDAVP eliminated the requirement for cryoprecipitate transfusion and significantly reduced the risk of hepatitis exposure, transfusion reactions, and hospital costs.

In summary, DDAVP increases levels of VIII:C, VIIIIR:Ag, and VIIIIR:Rcof in some patients with vWD and mild hemophilia A. Effective hemostasis with DDAVP during surgery and postoperatively appears possible in selected patients with vWD. It is recommended that patients be infused with DDAVP before surgery with bleeding time determinations. Bleeding time reductions to normal will help select candidates likely to benefit from those possibly requiring cryoprecipitate and further study. It also appears that cryoprecipitate with 1.5 to 3 times the level of VIII:C present in conventional cryoprecipitate preparations can be obtained from normal blood

donors pretreated with DDAVP. Additional clinical trials are needed to substantiate these findings.

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Notes & Announcements

In Memoriam

Navy Medical Department victims of Beirut terrorist bombing, 23 Oct 1983:

HMC George W. Piercy
HM2 William B. Foster, Jr.
HM2 James Ellis Faulk
HM1 Ronny K. Bates
HM2 George N. McVicker
HM3 Joseph P. Milano
HM3 David E. Worley
LT John R. Hudson, MC
HM2 Michael H. Johnson
HN Bryan L. Earle
HM2 Marion E. Kees
HN J.R. Kane
HN William D. Elliot
HM3 Diomedes I. Quirante

F. Edward Hébert School of Medicine

A recent act of Congress named the School of Medicine of the Uniformed Services University of the Health Sciences (USUHS) as the F. Edward Hébert School of Medicine.

This act of Congress reflects its acknowledgment of Representative Hébert's 25-year effort to secure the creation of USUHS. As early as 1947 Mr. Hébert was urging the Armed Services Committee to "set up the school for the individual who wants to become a doctor, being willing to exchange his or her talents over a longer period of years so that the Government could get its investment back." Twenty-five years later the Congress enacted and the President signed the Uniformed Services Health Professions Revitalization Act of 1972, which created USUHS as a source of career-oriented medical officers with significant specialty training in military medical subjects.

Because of other programs developed by the University, USUHS will continue to be known as the Uniformed Services University of the Health Sciences. However, the University's School of Medicine will be known as the F. Edward Hébert School of Medicine.

Top Medical Reservist

RADM Joseph H. Miller, MC, USNR, has been appointed Deputy Director of Naval Medicine for Reserve Affairs jointly by the Director of Naval Medicine (Surgeon General) and the Chief of Naval Reserve.

Miller, who is vice chairman of the Department of Neurosurgery at the University of Tennessee Center for

the Health Sciences in Memphis, TN, assumed his new position in June 1983. As Deputy Surgeon General for Reserve Affairs, he advises the Navy Surgeon General and the Chief of Naval Reserve on all matters relating to the Navy's Reserve medical force.

The job is primarily concerned with enhancing the overall readiness of the Medical Department and the Navy/Marine Corps team by developing more viable Reserve programs and relevantly trained reservists.

In addition to his position at the University of Tennessee, RADM Miller is a senior member of the Neurosurgical Group of Memphis.

Occupational Health Workshop

The Navy Environmental Health Center will sponsor the 26th Navy Occupational and Environmental Health Workshop 7-13 April 1984 at the Pavilion Tower Hotel, Virginia Beach, VA.

Occupational and preventive medicine personnel are encouraged to attend this workshop. There is no registration fee.

For additional information contact Dianne Best, Navy Environmental Health Center, Naval Station, Norfolk, VA 23511. Telephone: FTS 954-4657, Commercial (804) 444-4657.

AOMA Publications List Available

The American Occupational Medical Association (AOMA), the nation's largest society of occupational physicians, announces the publication of an up-to-date catalogue listing more than 200 articles and reports about the health of workers. The Publications List, available from the Association at no charge, contains information on a wide variety of vital occupational health topics including:

- Toxicology and the effects of chemical exposures,
- Administration of occupational health programs,
- Medical Information Systems,
- Recognition of job-related illnesses, and
- Health risks related to selected occupations.

Articles are reprinted from the internationally-recognized *Journal of Occupational Medicine*, AOMA's official monthly publication. Most articles are priced at \$0.75 each. Complete information for ordering reprints is included in the List.

To obtain copies of the AOMA Publications List, send name and address to AOMA Publications List, American Occupational Medical Association, 2340 S. Arlington Heights Road, Arlington Heights, IL 60005.

Ships Named for Hospital Corpsmen

Several readers have brought to our attention that USS *De Wert* (U.S. Navy Medicine, May-June 1983) was not the second vessel named for a Navy hospital corpsman, and that USS *Williams* was not the first. In fact, 11 ships have been named for hospital corpsmen since 1919. One honors a World War I

corpsman, five honor World War II corpsmen, two are named for corpsmen who served during the Korean War, and three honor corpsmen who gave their lives in Vietnam. Seven received Medals of Honor, four were awarded the Navy Cross; one of the latter also received a Silver Star.

| | | |
|----------------------------------|---|---|
| <i>Litchfield</i> (DD-336) | Pharmacist's Mate 3rd Class John R. Litchfield, USN | KIA France 5 Sept 1918 |
| <i>Daniel A. Joy</i> (DE-585) | Pharmacist's Mate 2nd Class Daniel A. Joy, USNR | KIA Guadalcanal 5 Oct 1942 |
| <i>Thaddeus Parker</i> (DE-369) | Pharmacist's Mate 2nd Class Thaddeus Parker | KIA New Georgia 20 July 1943 |
| <i>Lester</i> (DE-1022) | Hospital Apprentice 2nd Class Fred F. Lester, USNR | KIA Okinawa 8 June 1945 |
| <i>Francis Hammond</i> (DE-1067) | Hospitalman Francis C. Hammond, USN | KIA Sanae-Dong, Korea 26 March 1953 |
| <i>Valdez</i> (DE-1096) | Hospital Corpsman 3rd Class Phil I. Valdez, USN | KIA Danang, South Vietnam 29 Jan 1967 |
| <i>Caron</i> (DD-970) | Hospital Corpsman 3rd Class Wayne M. Caron, USN | KIA Quang Nam, South Vietnam 28 July 1968 |
| <i>David R. Ray</i> (DD-971) | Hospital Corpsman 2nd Class David R. Ray, USN | KIA An Hoa, Quang Nam Province, South Vietnam 19 March 1969 |
| <i>Jack Williams</i> (FFG-24) | Pharmacist's Mate 3rd Class Jack Williams, USNR | KIA Iwo Jima 3 March 1945 |
| <i>Halyburton</i> (FFG-40) | Pharmacist's Mate 2nd Class William D. Halyburton, Jr., USNR | KIA Okinawa 10 May 1945 |
| <i>DeWert</i> (FFG-45) | Hospitalman Richard De Wert, USNR | KIA Wonju, Korea 5 April 1951 |

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